

Course Description Form				
Course Code and Name	5011329 Artificial Neural Networks			
Course Semester	Fall-Spring			
Catalog Content	Structure and fundamentals of artificial neural networks, neural network models, use of neural networks and developing applications.			
Textbook	Sagioglu, S., Besdok, E., Erler, M. (2003), Mühendislikte Yapay Zeka Uygulamaları 1 Yapay Sinir Ağları			
Supplementary Textbooks	Neural Networks: A Comprehensive Foundation, Simon Haykin, Pearson Education Inc. Leicestershire U.K 1999 Principles of Neurocomputing for Science and Engineering, F.M.Ham and I.Kostanic, McGraw Hill, 2001			
Credit	8			
Prerequisites of the Course	There is no prerequisite or co-requisite for this course.			
Type of the Course	Elective			
Instruction Language	Turkish			
Course Objectives	To present basic rules and techniques of neural network systems. To examine basic artificial neural network models and their applications.			
Course Learning Outcomes	1-It will be able to produce both theoretical and practical solutions to problems that may be encountered in Artificial Neural Network issues. 2- It learns how artificial neural networks can be developed practically as well as theoretically structured.			
Instruction Methods	The mode of delivery of this course is face to face			
Weekly Schedule	1.Week ANN Overview 2.Week Overview of techniques of ANN 3.Week Basic concepts and terms of ANN, ANN history 4.Week ANN structures 5.Week ANN structures 6.Week ANN learning algorithms 7.Week ANN learning algorithms 8.Week Feedforward networks 9.Week Unsupervised ANN 10.Week How ANN applied to a problem? 11.Week ANN Applications in Engineering 12.Week Research and demonstration project presentation 13.Week Research and demonstration project presentation 14.Week Research and demonstration project presentation			
Teaching and Learning Methods <i>(These are examples. Please fill which activities you use in the course)</i>	Weekly theoretical course hours Weekly tutorial hours Reading Activities Internet browsing, library work Designing and implementing materials Report preparing Preparing a Presentation Presentations Preparation of Midterm and Midterm Exam Final Exam and Preparation for Final Exam			
Assessment Criteria		Numbers	Total Weighting (%)	
	Midterm Exams		30	
	Assignment		10	
	Application		20	
	Projects		60	
	Practice			
	Quiz			
	Percent of In-term Studies (%)		40	
	Percentage of Final Exam to Total Score (%)		60	
Attendance				

Workload	Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load
	Weekly Theoretical Course Hours	14	3	42
	Weekly Tutorial Hours	3	3	9
	Reading Tasks	14	3	42
	Studies	14	3	42
	Material Design and Implementation	5	5	25
	Report Preparing	1	7	7
	Preparing a Presentation	1	5	5
	Presentations	1	3	3
	Midterm Exam and Preparation for Midterm Exam	1	10	10
	Final Exam and Preparation for Final Exam	1	15	15
	Other (should be emphasized)			
	Total Workload			200
	Total Workload / 25			8
	Course Credit (ECTS)			8

Contribution Level Between Course Learning Outcomes and Program Outcomes	No	Program Outcomes	1	2	3	4	5
	1	Reaches the expansion of knowledge by conducting scientific research in the field of engineering and evaluation, interpretation and application of information.				X	
	2	Has extensive and in depth knowledge including the latest techniques, methods applied and their limitations in engineering.				X	
	3	Completes and applies knowledge by using scientific methods by using limited or missing data and integrates information from different disciplines.				X	
	4	Be aware of new and developing practices of the profession, examines and learns when needed.				X	
	5	Defines and formulates problems related to the field, develops methods to solve them and applies innovative methods in solutions.				X	
	6	Develops new and / or original ideas and methods, designs complex systems or processes and develops innovative / alternative solutions in their designs.				X	
	7	Designs and applies theoretical, experimental and modeling based researches, examines and solves the complex problems encountered in this process.				X	
	8	Works effectively in disciplinary and multidisciplinary teams, leads such teams and develops solution approaches in				X	

	9	Communicates oral and written using a foreign language at least at the level of European Language Portfolio B2.			X	
	10	Conveys the process and results of the studies in written and oral form in a systematic and clear manner in national and international environments within or outside the field.		X		
	11	Knows the social, environmental, health, security, legal aspects of engineering applications; project management, and business life applications and be aware of the constraints of these engineering applications.		X		
	12	Considers social, scientific and ethical values in the stages of data collection, interpretation and announcement and in all professional activities.		X		
The Course's Lecturer(s) and Contact Informations		Name Surname: Prof.Dr.Şeref SAĞIROĞLU E-mail address: ss@gazi.edu.tr				